ON

ALBUMINURIC RETINITIS.

BY

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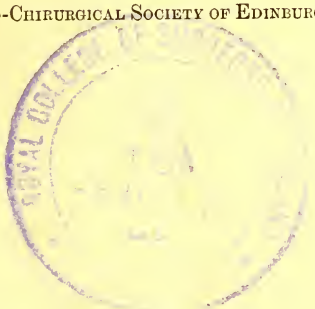

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ON ALBUMINURIC RETINITIS.

That dimness of sight in many cases accompanies disease of the kidneys, has long been recognised, but until comparatively recently the defect in sight was invariably attributed to uræmic poisoning of the nervous system. Now, although this is occasionally the case, as a rule it is due to organic alterations in the retina. The symptoms in the two classes of cases are, as was pointed out by Von Graefe, quite distinct. Where the dimness of sight is due to uræmia, the amaurosis occurs suddenly, reaching its height in several hours—in some cases even in a few minutes—and the blindness is not unfrequently complete. Resolution occurs equally rapidly. In the other form the sight may also become pretty rapidly impaired at the commencement, but thereafter progresses more gradually, and after increasing for several days remains stationary for a longer period. Very seldom does absolute blindness ensue. Resolution, too, when it does occur, proceeds very slowly.

It is to this latter form alone that I intend to direct attention. Dr Türk has the credit of having first pointed out that fatty degeneration of the retina may occur in Bright's disease, he having found this condition on microscopical examination of the eyes of a man who had died of that malady. This was in 1850, before the invention of the ophthalmoscope. Dr Heymann, of Dresden, in 1856 was, as far as I can ascertain, the first to describe the ophthalmoscopic appearances of a peculiar variety of inflammation of the retina, followed by, or accompanied with, fatty degeneration of that structure, and associated with Bright's disease.[1] He narrated three cases, in one of which a fatal result occurred. He subjected the eyes to a careful microscopical examination, and found the retina studded at points with large fat corpuscles and what he supposed to be ganglion-cells in a state of fatty degeneration. Liebreich next, in 1859, more particularly described the appearances characteristic of albuminuric retinitis, referring especially to the envelopment of the optic papilla by a circle of swollen degenerated retina

[1] Archiv. für Ophthalmologie, Band IV. abth. ii. p. 41.

of a bright white colour (as if by a mound), and the peculiar arrangement of groups of brilliant white spots at the macula lutea, in the form of lines radiating from the centre of the macula.[1]

Numerous cases have since been recorded by Nagel, Von Graefe, Schweigger, Hulke, Galezowski, Hart, Hutchinson, etc., in all of which similar appearances were observed. As regards the exact tissue of the retina in which the degeneration occurs, a considerable diversity of opinion has prevailed, but most have observed the change primarily to affect the outer and inner layer of granules, while Nagel and Schweigger also found the connective tissue of the retina, the fibres of Müller, similarly affected.[2]

In addition, a thickened sclerosed condition of the optic nerve-fibres was noticed by some observers.

The form of Bright's disease in which this condition most frequently occurs is the contracting or cirrhotic, but it has occasionally been observed in the amyloid variety. It has also been described as accompanying the albuminuria of pregnancy, and at least one case of this description has come under my own observation.

Traube ascribes the retinitis to hypertrophy of the left ventricle, and in almost all cases, though not invariably, this condition has been found present. But it is surely rash to conclude that this is the exciting cause of the retinal inflammation, as hypertrophy of the left ventricle occurs in very many diseases in which retinitis has not been observed as a concomitant affection, and is invariably present in advanced stages of Bright's disease. Is it not likely that in the delicate structures of the retina, nutritive changes scarcely observable in other parts may lead to serious impairment of function, and that this may explain the phenomena in question? This view is, it appears to me, confirmed by the facts that derangements of other nervous functions are not unfrequently observed in the course of chronic Bright's disease, and in one case fatty degeneration of some of the ganglion-cells and of the parenchyma of the corpora striata was detected. This would serve to indicate that a similar diseased condition occurred in other parts of the nervous system. That the impairment of vision in albuminuria usually depends on retinitis is proved by Von Graefe's statistics, for he shows that of thirty-two cases of impaired vision with albuminuria, which he carefully examined, retinitis was present in thirty, while in the remaining two there were well-marked uræmic symptoms.

It is a striking fact that in a large proportion of cases where the retina becomes affected, uræmia soon thereafter occurs, while in other instances retinitis becomes developed shortly after the manifestation of uræmic symptoms. Landouzy has expressed the conviction that albuminuric retinitis is very often an initial symptom of Bright's disease, which view is negatived by Von Graefe, who refers to the condition of the kidney which is found associated with

[1] Archiv. für Ophthalmologie, Band V. abth. ii. p. 265.

[2] Ibid., Band VI. abth. i. p. 191; and ibid., Band VI. abth. ii. p. 294.

retinal affections, as indicating a long pre-existent state of disease, and explains the fact that impaired vision is occasionally the first symptom that obliges the patient to apply for relief, by the consideration that the symptoms of kidney-disease are, in such cases, of a very insidious nature, and escape the notice of the patient, but on careful examination into the history of the case can generally be found to have existed.

Von Graefe has in three patients observed the white degenerated spots in the retina completely to disappear with recovery of function, which he believes may be explained by the view that the connective tissue is the chief seat of the fatty degeneration. Almost complete resolution has also been observed by Liebreich. The peculiar arrangement of the degenerated spots at the macula lutea has been ascribed by Schweigger to the anatomical arrangement of the fibres of Müller, which at the macula are placed obliquely, and radiate from the central point, and which are, according to many microscopists, first affected with the degeneration.

The following cases, which have occurred in my practice during the past year, have induced me to bring this affection under your notice as a subject of some importance and of considerable interest, although I have little to add to what has already been recorded.

I. Mary Ormiston, æt. 17, consulted me, on the recommendation of Dr Matthews Duncan, on the 17th January 1870, respecting dimness of vision. Her mother informed me that when she was about two years of age, for about two months she had daily fits of a convulsive nature. The fits lasted about ten minutes or a quarter of an hour, and were attributed to teething. After a single administration of chloroform by Sir James Simpson, who was called to see the case, the fits never returned, but for six or eight months after there was complete loss of power in both legs, which, however, eventually entirely disappeared. When about four or five years of age she had a severe attack of jaundice. With these exceptions she enjoyed good health till about two years ago, when she became afflicted with distressing headaches, the pain being usually most severe in the right supraorbital region. The headaches recurred at irregular intervals till the last two months, during which time they have recurred regularly once a week. The pain commences in the afternoon, gradually increases in severity till two or three o'clock in the morning, when the symptoms again gradually subside. These attacks are accompanied by severe sickness and vomiting. The bowels are generally regular, and her appetite and general health in the intervals between the attacks very good. She has never menstruated, but her mother was nineteen and a sister eighteen before they menstruated. No œdema of ankles or eyelids was ever observed. For some months she has complained of thirst, and passes a large quantity of urine. She is often obliged to get up at night for the purpose. Her mother has noticed that the urine was frothy. Her skin is usually dry. She was of spare habit, but has

recently become stouter. The family history was exceptionally good. Inquiry regarding the origin and progress of her eye-symptoms disclosed that she had always been short-sighted, but had otherwise good vision, till about three weeks ago, when she noticed that her sight was dim and misty, and that on attempting to read a journal a black cloud appeared between her and the print. Both eyes were equally affected. For a long time previous to this occurrence her eyes got readily fatigued while reading. Her sight has since then become gradually more impaired. Her father was very short-sighted, but her mother's sight is good.

The patient was a moderately stout, dark-complexioned, healthy-looking girl; to all outward appearance free from disease. On examining the eyes, the media were found clear and the pupils active, but the sight much impaired. With each eye she was only able to read No. CC. of Snellen's types at 15 feet distance ($V = \frac{15}{200}$). Neither convex nor concave glasses materially improved her sight. On ophthalmoscopic examination, both eyes were found to be affected with retinitis, which presented all the characters of the albuminuric variety. The disease appeared to be a little further advanced in the right than in the left eye. In both the morbid process was almost entirely limited to the neighbourhood of the optic disc and macula lutea and the intervening retina. The optic papilla was of a grayish colour, and could scarcely be distinguished from the infiltrated retina which immediately surrounded it. At the macula lutea, and for some distance around it, the retina was of a gray colour from diffuse exudation into its substance; while, corresponding to the punctum centrale, there was a small round pearly white spot, and arranged in lines radiating outwards from it like the spokes of a wheel there were numerous other small white glistening spots. This was most marked in the right eye. Some similar but larger white patches were found between the macula lutea and optic disc. At several points, small extravasations of blood were observed. The retinal vessels were here and there obscured, but at other points lay superficial to the exudation. The results obtained by the ophthalmoscope at once directed attention to the kidneys. The urine was found to be pale, of low specific gravity (1012), and very highly albuminous. It deposited no tube-casts or other sediment. She was ordered bromide of potassium (gr. xii. thrice daily), and to continue a mixture containing iron and arsenic which had been previously prescribed by Dr Matthews Duncan.

I again examined the patient carefully on the 23d March. The sight in the right eye had become still more dim, so that she could only count fingers with it at the distance of four feet. The sight in the left eye was the same as at first examination. There was now slight convergent strabismus of the right eye. Fatty degeneration of the retina is in both eyes much more marked, and in the right white patches are now visible in some peripheral portions of the

retina, while the spots formerly observed have increased in size and coalesced, so as to form one large white patch enveloping the optic papilla, and extending thence to beyond the macula lutea. In the left eye the diseased condition is more circumscribed to the neighbourhood of the macula lutea, where the degenerated points are arranged in lines radiating from the punctum centrale. Her general symptoms have increased in severity. She is still very thirsty, drinking large quantities of water day and night. The headaches occur periodically as before, but do not entirely disappear during the intervals. There is still complete absence of anasarca, and she passes a large quantity of urine. The appetite continues good, and she has not materially lost flesh, but she is very easily fatigued.

Shortly after this she discontinued her visits to me, and I heard nothing more of her till her mother called at the Eye Dispensary and informed me that she had been advised to send her daughter to the country, with the assurance that change of air would effect a complete cure; that, accordingly, she had sent her to Prestonpans, where she was seized a few days later with convulsive fits of which she died.

I wrote to Dr Oliver, under whose care she was, who kindly informed me that he had been called to visit her during a fit of epileptiform character, that she had a succession of similar fits, and that from the first attack she was never conscious. No post-mortem examination was made.

I cannot doubt that in this girl's case we had an example of contracting kidney. The insidious progress made it difficult to obtain a satisfactory history of the renal symptoms, and it was only on observing the state of the retina that attention was directe d to the condition of the kidneys.

II. John Patterson, æt. 49, shoemaker, consulted me on account of dimness of vision on 17th May 1870. He states that he enjoyed very good health, "never lying a day in his life," till eleven weeks ago, when, after a severe rigor, he was attacked the following evening with very severe vomiting, attended with distracting pains in the head and back of neck, and sometimes in the loins. The vomiting lasted to a greater or less degree for four weeks. The matters vomited varied much, being sometimes bilious. Once vomiting lasted from 2 A.M. till 9 P.M., even a drink of water not staying on the stomach. Was frequently very drowsy, and would fall asleep even while sitting on a chair. He has never had any œdema of the ankles or eyelids. For the last twelve months he has had to make water more frequently than formerly, especially during the night, and he passes a larger amount than he used to do. He suffers much from thirst, and has to get up at least six times during the night to get a drink of water.

His sight was not markedly affected till about a fortnight after the commencement of his sickness, when his vision suddenly failed

him one morning, everything appearing veiled by a thick mist, while the previous evening his sight had been quite clear, and he was able to read as usual. He also saw black motes floating in the mist, and a few weeks later bright spectra appeared before him. The mistiness has continued to the present time, but has somewhat diminished in degree, so that now he sees better than he has done since the original attack. The stooping posture gives rise to a feeling of heaviness and pain in the head, and increases the dimness of vision. About three or four months ago he had double vision for a few minutes, but it has not recurred.

The patient was rather anæmic, but otherwise appeared healthy. The pupils were of natural size and mobile, and the media were clear. With the left eye No. CC. of Snellen's types can be read at 15 feet; with the right eye, assisted by a weak convex lens (+ 28), No. XL., at same distance. Opthalmoscopic examination reveals the presence of albuminuric retinitis. In the left eye the macula lutea was the seat of extensive fatty degeneration, and the retina between it and the optic papilla clouded with exudation. At several points small extravasations of blood had occurred into the retina. The optic nerve was also infiltrated with exudation, and two small blood extravasations were visible in the optic papilla. The right eye was similarly affected, but the disease was less advanced, and the blood extravasations more numerous. The urine was pale and highly albuminous. The patient was ordered iodide of potassium in gr. v. doses, and counter-irritation by means of the biniodide of mercury ointment applied to the temples. I recommended the patient to enter the Infirmary, under Dr Stewart's care, but he merely attended as an out-patient till 21st October, when he was brought in suffering from uræmic symptoms, and died comatose on 23d October. On post-mortem examination the kidneys presented, characteristically, the appearances of the contracting form of Bright's disease. This man had no suspicion of any serious affection beyond impairment of vision when he applied to me for advice, and the ophthalmoscopic appearances led to the detection of the renal malady.

III. Mr F. consulted me, upon the recommendation of Dr Warburton Begbie, on the 15th September last, on account of chemosis of his left eye, and dimness of sight in both. The chemosis was so great that it was only when the orbicularis was brought into strong action that the eyelids were completely closed. The left eye appeared to be somewhat protruded, and the conjunctiva was considerably injected. Vision was very defective in this eye, and even with the right he could only decipher No. XL. of Snellen's types at 15 feet distance. On ophthalmoscopic examination the appearances of albuminuric retinitis was most characteristically presented. The disease was more advanced in the left than the right eye. Upon then inquiring into the history of his case, I learned that disease of the kidneys had been previously

detected. For the following data I am indebted to Dr Begbie. For nearly two years Mr F. had been subject to periodic attacks of acute pain in the right occiput, most severe at night, and accompanied by sickness and vomiting. During these attacks vision was always much impaired. He has lately had occasional discharges of blood from the urethra, and his sputa have been tinged with blood. He has never noticed any swelling of his ankles. He has recently passed larger quantities of urine than he formerly used to do. The urine is albuminous even when no blood is present. Numerous remedies have been employed in his case, but most improvement attended the internal administration of arsenic and iron.

This is another well-marked example; and, in connexion with it, I would draw attention to the periodic headache and vomiting which were associated with the progress of the disease. When such symptoms occur in a case of chronic Bright's disease, retinitis is rarely found to be absent.

IV. On the 18th of January last I examined, at Dr Grainger Stewart's request, the eyes of Archibald March, a man aged 40, of anæmic complexion, and affected with chronic Bright's disease. His case has been recorded in Dr Stewart's work on "Bright's Disease" as a typical case of waxy degeneration. I found his vision much impaired, especially in the left eye. On ophthalmoscopic examination I detected the presence of retinitis in both eyes, with commencing degenerative changes, and several points of blood extravasation. This patient gradually sank, and died comatose from uræmia on the 3d February. On post-mortem examination waxy degeneration of kidneys, liver, and spleen was found.

This is an instance of retinitis accompanying amyloid degeneration of the kidney, which is of comparatively rare occurrence.[1]

V. James Stein, æt. 28, stone-mason, came to the Eye Dispensary on the 9th of February, complaining of defective sight. The ophthalmoscopic appearances were characteristic of albuminuric retinitis, there being exudation into the optic papilla and surrounding retina, extending to the macula lutea—numerous points of blood extravasation, and glistening white patches of fatty degeneration. On inquiring into the history of his ailment, I learned that he had occasionally during the last two years suffered from œdema of the ankles; and that, on one occasion, he had swelling of the face and eyelids and body generally. He now makes water very frequently, and passes a large amount in the twenty-four hours, and has lost flesh. His sight began to fail a week ago, when everything seemed dim and misty, and he had the appearance of bright spectra before the eyes. This attack was accompanied by severe pain in the head. I sent this patient to the Royal Infirmary, where he remained under the care of Dr Grainger Stewart, exhibited severe uræmic symptoms, from which, however, he rallied, and

[1] Similar cases have been recorded by Traube and Beckmann.

was able to leave the Infirmary and return home, where he died from a recurrence of the uræmia a few weeks later.

I hope that these cases may suffice to direct the attention of the members of this Society to a combination of diseases which has hitherto attracted less notice than, in my opinion, it deserves. Treatment, unfortunately, does as little for the retinal affection as for the disease with which it is associated. At the same time recovery has taken place,—we are therefore not entitled wholly to despair.

I have summarised, as follows, the chief points of interest to which I have referred:—

1. That dimness of vision is a frequent concomitant of chronic Bright's disease; and that, while in a few cases the defective sight may be attributable to uræmic poisoning of the nervous system, in the great majority of cases it is due to inflammation of the retina, attended with fatty degeneration.

2. That this disease of the retina presents such distinctive ophthalmoscopic appearances as enable it to be at once with certainty recognised.

3. That this retinal affection is found most frequently to accompany the contracting form of Bright's disease, but occasionally, also, the amyloid variety.

4. That not unfrequently, from the insidious progress of the disease, the affection of vision is the first symptom that obliges the patient to apply for advice, and that thus the ophthalmoscope may lead to the detection of previously overlooked kidney disease; and,

5. That, in a few cases, the diseased condition of the retina has been resolved, with restoration of function.

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